

# Phagedena

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Genital ulcers were well known in the ancient world. While many were relatively harmless, some spread rapidly and were highly destructive; to these the word *phagedena*, from the Greek *phagein*, to eat, was applied. The condition was mentioned by Greek, Roman, Indian and Chinese medical writers. Although a connection with coitus was acknowledged, its cause was obscure; it was variously ascribed to acid vapours caused by the corruption of semen, suppression of the menses, or a disorder of the humors originating in the liver. The first description of phagedena by a non-medical author may have been by Palladius (ca 363-431). He referred to a monk who developed an ulcer on his glans after intercourse which rapidly worsened until the external genitals were completely destroyed. He was ill for six months but eventually recovered, thereafter leading "an exemplary life."<sup>1</sup>

Such lesions were as common in the Middle Ages as in antiquity. The English surgeon John of Arderne (1306-1390) gave an example:<sup>2</sup> *The man's yard [penis] began to swell after coit, whereof he suffered great grievousness and aching as men do when they be so hurt. He was told by a lady to apply a plaster of boiled leeks, but this made him worse.*

John was called in, and the next day "he put the patient on a table and with a razor cut away all the dead and stinking flesh, and applied quicklime." This patient recovered, but phagedena could have a fatal outcome; it was said to have killed John of Gaunt, son of Edward III and brother of the Black Prince, "a great soldier and a great fornicator."<sup>1</sup>

After the advent of syphilis in the late 15th century phagedena was often ascribed to the "venereal poison." But Astruc, writing in 1737, mentioned "stagnation of blood and lymph in the parts" as causing "sphacelus [from the Greek *sphakelos*, gangrene] of the pudenda", evidently the same disease as phagedena: *There arise pustules or small bladders upon the skin, full of brown or reddish ichor [foul material] . . . the skin and the parts lying under the skin are corrupted, dead, foetid and void of heat, sensation and pulse; if they are taken hold of with the fingers they fall to pieces.*<sup>3</sup>

Astruc stated that it could affect not only the penis but "the *labia vulvae* in women and the margin of the anus in *Pathics*." Like others, he emphasised the need for early and thorough removal of dead tissue: "it is worse to offend by doing too little than too much; in order to consult the safety of the Patient it is better to erode the sound parts by a necessary piece of cruelty than to leave the gangrene uncured by an unpar-

*donable piece of pity.*" Extirpation of a sphacelus was relatively easy if it affected only the prepuce, but: "it requires a more violent and dangerous operation if the head of the Penis, the *Labia vulvae* or a portion of the margin of the anus are affected . . . there is no hope left if upon the Sphacelus extending itself to the internal parts, shivering, swooning, weakness or lowness of the pulse suddenly follow, for it is plain that the disease is communicated to the blood and will quickly prove fatal."

In the 18th century the relationship between phagedenic ulceration and syphilis was undecided. Turner described a case where this seemed to be definite. The patient was "middle aged, much given to the tipling of strong waters, and being therewith intoxicated to pick up any foul slut who came his way." He developed a penile ulcer which rapidly became phagedenic and required radical surgery. Subsequently he was severely ill and developed a generalised pustular skin eruption; he was treated for syphilis with a course of mercury and eventually recovered. Turner wryly concluded: *In about twelve months after this, however indifferently provided, he made courtship to, and married, a woman suitable indeed in years but how in other respects is best known to themselves.*<sup>4</sup>

Benjamin Bell, on the other hand, believed that phagedena was not necessarily a complication of syphilis: "I have reasons to think that in some instances it [rapid progression] proceeds from the nature of the matter by which the chancres are produced . . . I conclude that this is so by the observation that those of this description are more frequent at some times than at others, and from observing them in people who have received their infections from the same woman."<sup>5</sup>

Such cases also occurred during the Peninsular War (1811-1814), and became known as the "black pox" or "black lion of Portugal." William Fergusson, Inspector General of Hospitals to the Portuguese army, wrote: "It is certain that all changes of climate from a cold to a warmer temperature predispose the human frame to febrile affections or other forms of acute disease and that the English, always incautious and frequently intemperate, are exposed in a particular manner to suffer from this predisposition. If previous to this they should have the misfortune to be affected by venereal ulceration, the elements of the disease are diverted into new channels and make their exit as phagedenic ulceration."<sup>6</sup>

Fergusson described a patient who contracted the disease from an opera dancer in Lisbon who continued on the stage for many months, occasionally infecting others

"without, as far as I could learn, anything extraordinary in the nature of symptoms."

The modern reader may think that the patients described by Bell and Fergusson were initially suffering from chancroid but this disease, although much older than syphilis, was not differentiated from it until the 1850s.<sup>7</sup> Understandably, the uncertainty about whether or not phagedenic ulceration was syphilitic caused physicians to agonise about the use of mercury. It was thought that if syphilis was likely mercury should be given, yet the common experience was that mercury was ineffective against phagedena, and indeed often made it worse. Swediaur wrote: "*I myself have seen many many instances where patients affected with venereal ulcers united with a scorbutic habit of body, by the imprudent use of mercury were not only reduced to a most wretched condition, but even brought to death.*"<sup>8</sup>

The same point was made by Carmichael in discussing the treatment of patients in the Peninsular War: "*the frequent melancholy mutilations which occurred among our soldiers . . . there are strong grounds for believing that the ravages which the disease committed on the British troops arose not so much from the inflammatory disposition manifested in the constitution of the inhabitants of colder climates on their arrival in a warmer, as from the indiscreet exhibition of mercury, a medicine from which the local practitioners abstain, considering it with horror as only one of the poisons which foreigners madly wield.*"<sup>9</sup>

Ricord<sup>10</sup> did not agree. He wrote that "*there are circumstances under which a mercurial treatment is followed by the best results, and this fact is constantly proved by the practice of those who avow the most deadly hatred to mercury.*" Wallace<sup>11</sup> attempted a compromise by subdividing phagedena into nine different varieties, some needing treatment with mercury and others not."

Although its aetiology was uncertain, the clinical features of phagedena were clear

enough (figs 1–3). It did not affect normal genitals in healthy people, but was secondary to other conditions. "Ulcerative" and "sloughing" forms were described and, particularly in the latter, tissue destruction was marked. Bell had known "*a considerable part of the glans destroyed by it in the course of a day . . .*"



Figure 2 Severe phagedena following primary syphilis. In: Rieck E Lehrbuch der Haut- und Geschlechtskrankheiten. Jena, Gustav Fischer 1923, 714.

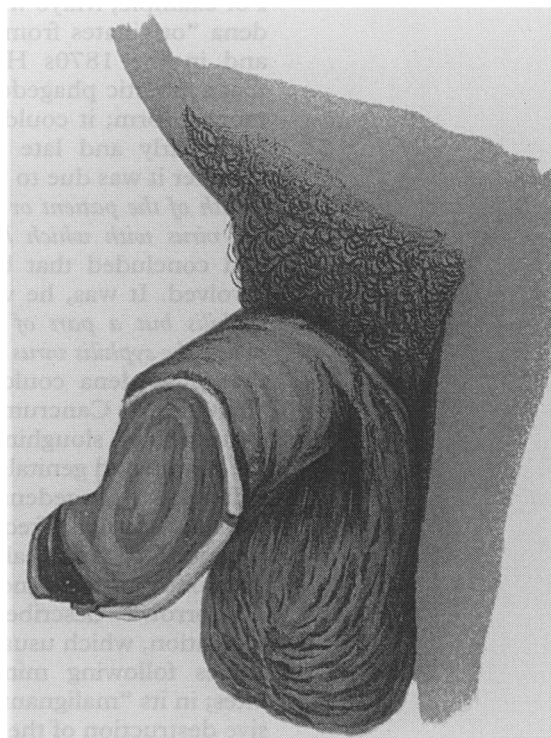
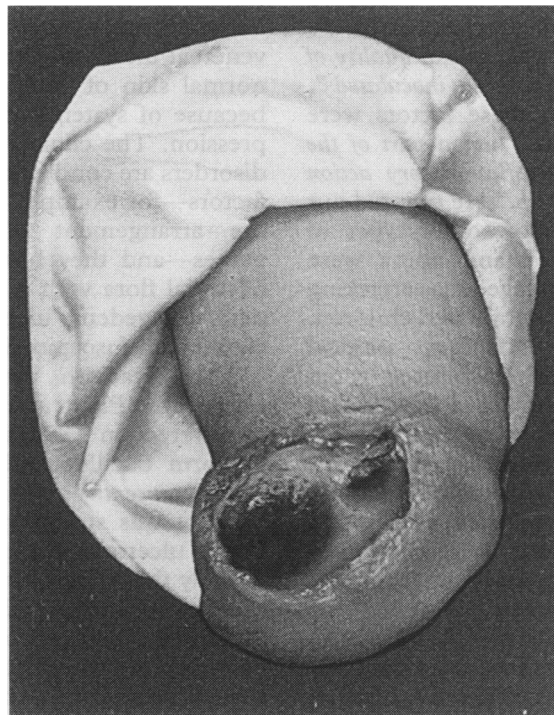


Figure 3 Phagedenic chancroid: destruction of the glans penis and part of the corpora cavernosa. In: Morrow PA A system of Genito-Urinary Diseases, Syphilology and Dermatology, vol 2. Edinburgh and London, Young and Pentland 1894, Plate 24.

Figure 1 Phagedena complicating a primary syphilitic chancre. In: Jacobi E Atlas der Hautkrankheiten. Berlin, Urban und Scharzenberg 1913, Tab 126.



*I have known the urethra laid entirely bare for a considerable length."* Partial or complete destruction of the genitals was not uncommon. Colles wrote: "*In a few cases the process of destruction ceases not until it has destroyed the organ to a level with the pubes; in such melancholy instances, even after the ulcer has healed, the patient is tormented by the manner in which the urine passes out of the distorted and contracted opening of the remnant of the urethra; for it rises so much upwards that the unhappy patient is obliged to direct the stream forward by holding his hand over the pubes.*"<sup>12</sup>

Carmichael,<sup>9</sup> who claimed to have seen "a vast number of cases of phagedenic ulcer", mentioned the haemorrhage which followed the destruction of the coats of an artery: "*I have frequently found the patient's bedclothes drenched in blood, and in many instances found it necessary to stop the haemorrhage by ligature.*" He added that in some cases "*the phagedenic disease is accompanied by ulceration of the throat which may extend upwards and involve the nares. If it extends downwards to the larynx there will be little chance of saving the patient's life.*" Involvement of the throat was described by other writers and it was noted that, like phagedena of the genitals, it was unresponsive to mercury. The course of phagedena was usually short, or even quickly fatal, but it could be prolonged. Swediaur described a man who had had destructive penile ulcers for nine months and became "*of such a sickly and cachectic appearance that I hardly knew him.*" He recovered, but he lost more than half his penis, which "*rendered him for ever unable for propagation, to the great sorrow of his family.*"<sup>8</sup>

As time went by the earlier belief that phagedenic ulcers were independent of "the venereal disease" was gradually abandoned. For example, Mayo wrote in 1840 that phagedena "*originates from syphilitic contagion*",<sup>13</sup> and in the 1870s Hutchinson<sup>14</sup> maintained that syphilitic phagedena was by far the commonest form; it could occur in the lesions of both early and late syphilis. He wondered whether it was due to "*something unusual in the health of the patient or to some special quality of the virus with which he has been inoculated*", and concluded that both these factors were involved. It was, he wrote, "*not a part of the syphilis but a part of the inflammatory action which the syphilis virus sets up.*" He pointed out that phagedena could follow other types of "irritation." Cancrum oris and noma were examples of sloughing phagedena attacking the mouth and genitals of debilitated children. "Hospital phagedena", affecting surgical wounds, was not infrequently introduced by the admission of "venereal cases", and then spread from one patient to another by contagion.

Morrow<sup>15</sup> described tropical phagedenic ulceration, which usually affected the feet and ankles following minor injuries and insect bites; in its "malignant" form there was extensive destruction of the skin and fasciae, exposing tendons and blood vessels.

Since the work of Rollet and Bassereau in the mid 19th century clinicians were diagnosing chancroid with more confidence, although

*Haemophilus ducreyi* was not discovered until 1890. It was realised that phagedena could follow this disease as well as syphilis, the resulting condition being called *ulcus molle phagedenicum*. The importance of host factors such as uncleanness, and diseases like diabetes and tuberculosis, was also recognised. Ricord<sup>16</sup> blamed alcoholism and malnutrition. Another physician, who had seen eight cases of phagedenic ulceration of the vulva in the London Lock Hospital, described the patients as: "*prostitutes of the destitute class, living in low parts of London and addicted to habits of intemperance . . . miserably clad, ill fed and very dirty, showing (as I believe) that phagedena arises from dirt, neglect and intemperance rather than syphilis.*"<sup>17</sup>

Many observers included the administration of mercury among the factors which might provoke phagedena. Hutchinson stated that most of the cases who had passed through his hands had been subjected to "savage mercurialisation."

The management of phagedena underwent little change over the centuries. At the end of the 19th century it was still usually treated by destroying all the necrotic tissue with a cautery or (as favoured by Hutchinson) by applying strong nitric acid; general anaesthesia was required for these procedures. Even so, it was often very difficult to arrest the relentless progress of the disease; if all else failed, continuous immersion of the patient in a hip bath of warm water for 7–10 days was sometimes effective.<sup>18</sup> Internal medication was not favoured, but if the patient showed signs of secondary syphilis iodides, or even mercury, were given.

#### *The aetiology of phagedena*

Phagedenic ulcers belong to a group of loosely related ulcerative lesions often described as independent conditions—noma, cancrum oris, Fournier's gangrene, necrotising fasciitis and synergistic gangrene.<sup>19</sup> They all have a significant mortality. They arise in a cutaneous lesion—an injury, an operation site or a venereal ulcer—or they may affect apparently normal skin of people with a low resistance because of systemic diseases or immunosuppression. The clinical manifestations of these disorders are conditioned in part by anatomical factors—for example, Fournier's gangrene by the arrangement of the perineal fascial planes—and they have in common a mixed bacterial flora with a large anaerobic component. Phagedenic ulcers are particularly associated with fusospirochaetosis.<sup>20</sup>

Jean Hyacinth Vincent in Marseille and Hugo Carl Plaut in Hamburg independently discovered, in 1894 and 1896, an anaerobic fusiform bacillus and a spirochaete (*Treponema vincentii*) which occurred together. Vincent was studying hospital gangrene and Plaut ulceromembranous gingivitis. Subsequently these organisms, together with strains of *Bacteroides* spp and other pathogens, were identified in phagedenic genital ulcers, erosive balanitis, noma and cancrum oris. During the First World War "trench mouth" was another

member of the group, having resemblances to the pharyngeal phagedena described by the earlier workers. Vincent and others pointed out that fusospirochaetal organisms are part of the normal oral and genital flora. It is believed that lowered local resistance caused by genital lesions such as syphilis and chancroid, and by dirt, poor local hygiene, malnutrition and chronic illness provokes their overgrowth. In turn this leads to necrotising effects which may be further aggravated by associated infection, particularly with anaerobes.

Throughout the 20th century the incidence of genital phagedena, which was once a common disease, has declined and it is now rare, at least in industrialised societies. No doubt this is due to improvements in nutrition, general health and hygiene, to the declining incidence of chancroid and perhaps to the abandonment of mercury therapy for syphilis. Occasional cases still occur, and related conditions such as cancrum oris and tropical phagedena are seen in developing countries. The prognosis has improved with the availability of effective antimicrobial agents.

The outlook for patients treated promptly with these, combined with vigorous surgical debridement, is now reasonably good but phagedena has always been a serious disease.

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